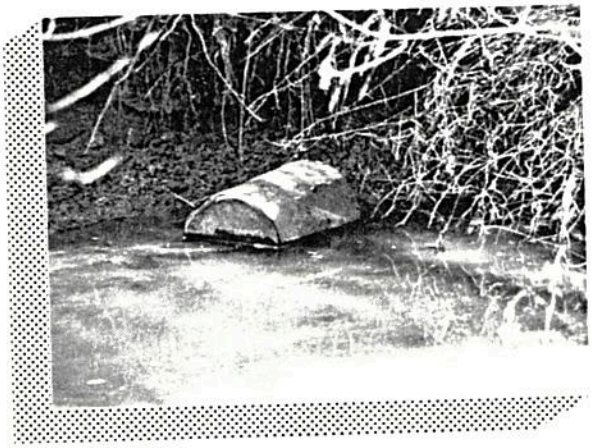
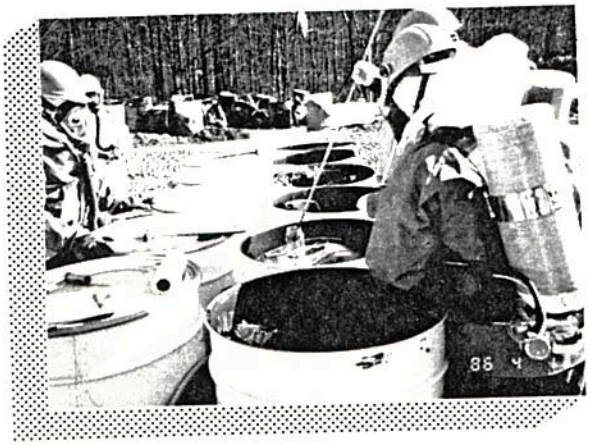
U.S. Environmental Protection Agency Region III
Emergency Response Section

On-Scene Coordinator's Report
Bensalem Drum Dump Immediate Removal Action
Bensalem, Bucks County, Pennsylvania

OSC: Roger L. Meyer





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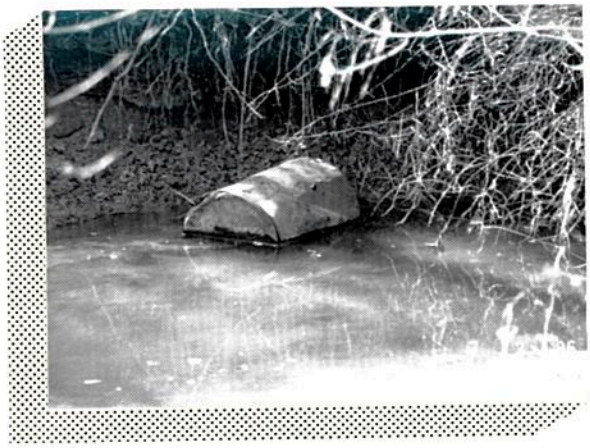
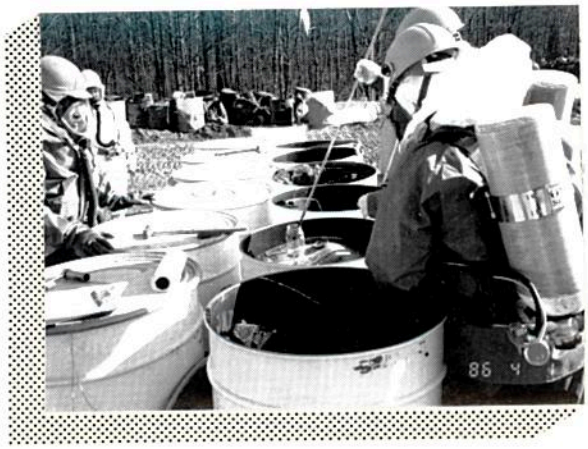




FEDERAL ON-SCENE COORDINATOR'S REPORT

BENSALEM DRUM DUMP SITE
2765 Galloway Road
Bensalem, Bucks County, Pennsylvania

CERCLA IMMEDIATE REMOVAL PROJECT
March 17, 1986 through July 25, 1986

UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY

Bensalem Drum Dump Site
Federal On-Scene Coordinator's Report

TABLE OF CONTENTS

FACTS SHEET

PROJECT #120

REGION III
CERCLA EMERGENCY RESPONSE/IMMEDIATE REMOVAL ACTION — FACTS SHEET

SITE: Bensalem Drum Dump

SIZE: Approximately 3 acres

LOCATION: Bensalem, Bucks County, Pennsylvania

APPROVAL DATE: February 14, 1986

PROJECT DATES: March 17, 1986 through July 25, 1986

DESCRIPTION: The Bensalem Drum Dump was formerly the location of a drum reconditioning facility in which drums and soil were discovered to contain hazardous wastes. The initial Immediate Removal Action was deemed necessary to abate the immediate threat to the public health and environment. These threats included direct contact with PCBs and heavy metals in contaminated soils, ingestion of hazardous materials due to bioaccumulation in the aquatic life (fish) in Mill Creek, or in local agricultural products which are irrigated with creek water. The unsecured access, the potential for off-site migration and the close proximity of Mill Creek, in addition to nearby residences and businesses, were complicating factors.

HAZARDOUS MATERIAL: PCBs, heavy metals

QUANTITIES REMOVED: 18 drums and 33.175 tons of bulk soil materials

OSC: Roger L. Meyer

REMOVAL CONTRACTOR: O.H. Materials, Inc.

DISPOSAL LOCATIONS: SCA, Model City, NY; RCRA #NYD049836679
General Electric Company, Philadelphia, PA

PROJECT CEILING: $697,745

PROJECT COST: $318,209 (Estimated)

Vincent Berardi
for Roger L. Meyer, OSC

FOREWORD

Bensalem Drum Dump Site
Federal On-Scene Coordinator's Report

FOREWORD

This report is submitted in accordance with procedures outlined in the National Oil and Hazardous Substances Contingency Plan (NCP). The primary thrust of the plan is to provide a coordinated Federal response capability at the scene of an unplanned or sudden discharge of oil or hazardous substance that poses a threat to the public health or the environment. In addition, the provisions of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) promote a coordinated Federal, State and local response to mitigate situations at hazardous waste sites which pose an imminent hazard to public health, providing a legal basis for Federal response activities. The provisions of the NCP were implemented by the U.S. Environmental Protection Agency, Region III, Philadelphia, Pennsylvania.

Special thanks are extended to the many agencies and groups who participated in this Federal Removal Activity. This well-coordinated team effort on scene enabled a timely and effective cleanup, which prevented a major environmental incident due to the hazards present on scene.

Roger L. Meyer
On-Scene Coordinator
U.S. EPA, Region III
Philadelphia, PA

SECTION I

INTRODUCTION

Bensalem Drum Dump Site
Federal On-Scene Coordinator's Report

I. INTRODUCTION

A. Initial Situation/Nature of the Incident

The Bensalem Drum Dump Site was formerly the location of a drum reconditioning facility. The recent land uses were commercial in nature.

During a 311K cleanup operation, the OSC discovered drums on the banks of Mill Creek which was adjacent to the site. On March 6, 1985, the OSC initiated a preliminary assessment performed by the Roy F. WESTON, Inc. Technical Assistance Team (TAT). Soil and drum samples were collected and analyzed via TAT Special Projects. The soil sampling locations were chosen to characterize the runoff patterns toward Mill Creek, which was less than 50 yards from the main drum pile.

Sampling data demonstrated the presence of cadmium, chromium, copper, lead, zinc, antimony, mercury and phenols in the local soils and also present in the sampled drums. These materials were present in significant quantities and were listed as hazardous substances pursuant to Section 101[14] of CERCLA. During the assessment at the site, approximately 150 drums were observed in various stages of deterioration with evidence of prior leakage of their contents onto the soil. The sampled drums were found to contain solids and sludges. Seeps, which usually indicate buried materials, were observed flowing into Mill Creek. Local residents reported that drum and sludge burial activities had been performed at the site in areas which contained fill materials. Two residents had reported that the former facility operator dumped sludge into a small pond or lagoon, which had since been buried.

During a subsequent site visit on April 18, 1985, airborne organic vapor readings of 2000 ppm were obtained above one drum with ambient air readings between 0 and 5 ppm across the site. High levels could indicate a potential fire and/or explosion hazard. Photographic and written documentation was performed to facilitate an Action Memorandum.

B. Site Location

The Bensalem Drum Dump was located at 2765 Galloway Road in Bensalem, Bucks County, PA. The Philadelphia Park Racetrack was located across Galloway Road to the south and hosted several thousand visitors six days a week during the racing season. In addition, approximately 100 people were residing within a 1/4-mile radius of the site. Two homes were situated less than 100 yards from the site.

C. Efforts fo Obtain Cleanup by Potential Responsible Parties

EPA CERCLA Removal Enforcement Section (Victor Janosic) performed a lengthy search of Bucks County tax records (see Enforcement Memo, Appendix G). In addition, the OSC and Enforcement personnel interviewed PADER and Bucks County Health Department which failed to produce a potential responsible party. The Enforcement recommendation was that site costs were to be borne by Superfund and the case was not a good candidate for cost recovery.

SECTION II

ROSTER OF AGENCIES, ORGANIZATIONS AND INDIVIDUALS

II. ROSTER OF AGENCIES, ORGANIZATIONS AND INDIVIDUALS, Bensalem Drum Dump, Bucks County, PA

NAMES AND ADDRESSES	CONTACT	DESCRIPTION OF DUTIES
U.S. EPA - Region III Emergency Response Section 841 Chestnut Building Philadelphia, PA 19107 (215) 597-8170	Roger L. Meyer	Federal On-Scene Coordinator; responsible for the overall success of the project.
U.S. EPA - Region III 841 Chestnut Building Philadelphia, PA 19107 (215) 597-6728, 9000, 9800	Pete Bentley Victor Janosic Lidia Isales	Public Affairs Officer Enforcement Section Office of Regional Counsel
U.S. EPA Environmental Response Team GSA, Raritan Depot Edison, NJ 08817 (201) 321-6746	Robert Cibulskis George R. Prince	Evaluated site waste streams to determine the feasibility of on-site treatment.
U.S. Coast Guard/Atlantic Strike Team Elizabeth City, NC 27909 (919) 338-1100	DC2 K.W. Goodwin	Provided cost tracking and site safety functions to the OSC.
Pennsylvania Department of Environmental Resources (PADER) 1875 New Hope Street Norristown, PA 19401 (215) 270-1920	Mike Panella George Danilew	Coordinated State support and discussed potential State involvement with the EPA removal project.
Bucks County Emergency Management Agency Room 107, Administration Building Doylestown, PA 18901 (215) 348-6000	Col. Charles McGill	Coordinated local emergency services with removal activities.
Bucks County Department of Health Neshaminy Manor Center Doylestown, PA 18901 (215) 788-0491	Pete Knoll	Acted as liaison between the EPA and local government agencies.

II. ROSTER OF AGENCIES, ORGANIZATIONS AND INDIVIDUALS, Bensalem Drum Dump, Bucks County, PA

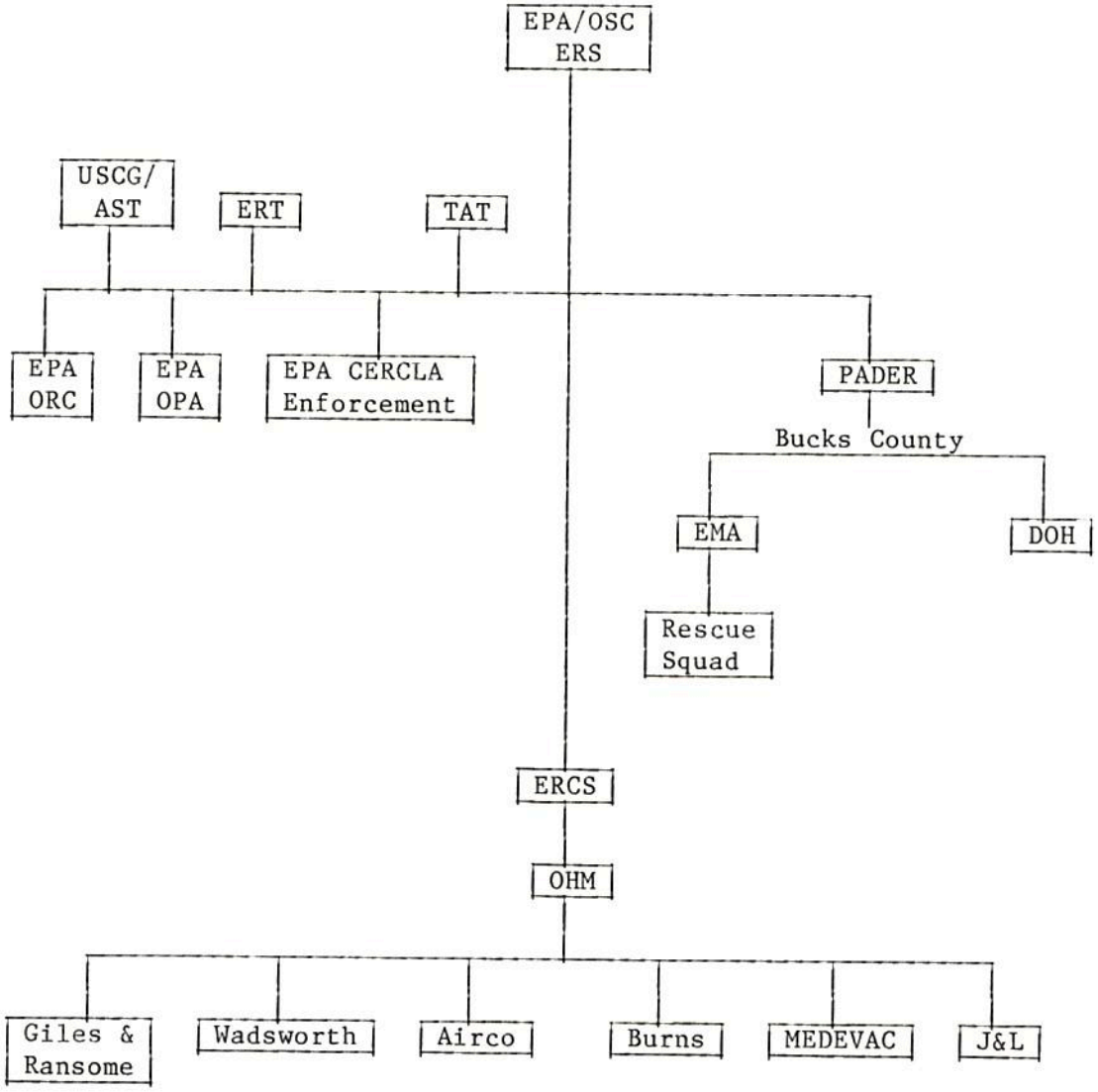
NAMES AND ADDRESSES	CONTACT	DESCRIPTION OF DUTIES
Roy F. WESTON, Inc., SPER Division 5090 Central Highway, Suite #4 Pennsauken, NJ 08109 (609) 663-7995	Greg Janiec Jennifer Brown	Provided technical assistance, project planning, sampling, contractor monitoring, analysis, air monitoring, site safety, photodocumentation, site documentation, and draft report writing.
O.H. Materials, Inc. P.O. Box 551 Findlay, OH 15317 (412) 921-8486	Jack Bender	Emergency Response Cleanup Services (ERCS) prime contractor.
J & L Industries, Inc. 8923 Ebenezer Road Chase, MD 21220 (301) 788-0800	William Laupert	Provided subcontractor support to the ERCS contractor.
Burns International Security Services 1518 Walnut Street Philadelphia, PA 19102 (215) 893-8300	Jerry Uphoff	Provided night security services.
MEDEVAC 1200 S. Cedar Crest Boulevard Allentown, PA 18104 (215) 776-8666	Dwight Bitting	Coordinated helicopter evacuation capability in the case of medical emergency. Provided medical monitoring of personnel.
Bensalem Rescue Squad 3800 Hulmeville Road Bensalem, PA 19020 (215) 245-4300	Carole Moyer	Supplied decontamination water for site activities. Provided medical monitoring of personnel.
Airco Industrial-Medical Gases 3476 Bristol Pike Bensalem, PA 19020 (215) 244-1990	Ron Rufo	Supplied breathing air to the ERCS contractor.

II. ROSTER OF AGENCIES, ORGANIZATIONS AND INDIVIDUALS, Bensalem Drum Dump, Bucks County, PA

NAMES AND ADDRESSES	CONTACT	DESCRIPTION OF DUTIES
Giles & Ransome, Inc. 2975 Galloway Road Bensalem, PA 19020 (215) 244-0600	Richard Burgoon	Provided rental and repair of on-site heavy equipment.

Bensalem Drum Dump Site
Federal On-Scene Coordinator's Report
ROSTER OF AGENCIES, ORGANIZATIONS AND INDIVIDUALS (continued)

A. Organization of the Response



B. Glossary of Abbreviations

Airco	Airco International, Inc.
Burns	Burns International Security Services
DOH	Bucks County Department of Health
EMA	Bucks County Emergency Management Agency
EPA CERCLA Enforcement	U.S. EPA Region III, RCRA and CERCLA Enforcement Section
EPA OPA	U.S. EPA Region III, Office of Public Affairs
EPA ORC	U.S. EPA Region III, Office of Regional Counsel
EPA/OSC ERS	U.S. EPA Region III, Federal On-Scene Coordinator, Emergency Response Section
ERCS	Emergency Response Contract Services
ERT	U.S. EPA Region III, Environmental Response Team
Giles & Ransome	Giles & Ransome, Inc.
J&L	J & L Industries, Inc.
MEDEVAC	MEDEVAC, Lehigh Valley Hospital
OHM	O.H. Materials, Inc.
PADER	Pennsylvania Department of Environmental Resources
Rescue Squad	Bensalem Rescue Squad
TAT	Roy F. WESTON, Inc., Technical Assistance Team
USCG/AST	U.S. Coast Guard/Atlantic Strike Team
Wadsworth	Wadsworth Testing Laboratories, Inc.

SECTION III

NARRATIVE OF EVENTS

Bensalem Drum Dump Site
Federal On-Scene Coordinator's Report

NARRATIVE OF EVENTS

During the Galloway Road 311K Action (January, 1985) on Mill Creek in Bensalem, PA, OSC Roger Meyer and the Roy F. WESTON Inc. Technical Assistance Team (TAT) personnel discovered drums within 100 feet of Mill Creek. A preliminary investigation located approximately 150 55-gallon drums abandoned in a wooded area. Many of these drums were deteriorated and leaking their contents onto the ground.

The OSC initiated a site assessment on March 8, 1985 utilizing the TAT. Analytical data from the assessment sampling indicated that materials present contained a variety of hazardous materials including heavy metals (see analytical data, Appendix F). Based on the assessment information, the OSC developed and submitted an Action Memorandum on April 5, 1985 for CERCLA funding to mitigate the threat posed by the Bensalem Drum Dump.

The Action Memo was signed on February 14, 1986 in the amount of $697,475. Due to limited regional funds, the ERCS procurement request was issued in the amount of $250,000 on February 25, 1986.

The OSC mobilized the ERCS contractor, O.H. Materials, Inc. (OHM), in order to begin the removal action on March 17, 1986. The staging of drums commenced the following day while U.S. Coast Guard/Atlantic Strike Team (USCG/AST) personnel monitored contractor operations and site safety. TAT personnel assisted the OSC by performing perimeter air monitoring, cost tracking and site documentation. At the end of the first week, over 100 drums were staged on visqueen.

Throughout the removal project, the OSC continually updated EPA Office of Public Affairs (OPA), Enforcement and Office of Regional Counsel (ORC). State and local officials periodically visited the site to be updated on site developments by the OSC.

During the following weeks, drums and contaminated soils continued to be staged. A total of 190 drums and approximately 300 cubic yards of contaminated soils were staged and sampled for compatibility and disposal. A clay cap was constructed to prevent downward percolation of water into potentially contaminated soil where the main drum pile had once been located. The clay cap was the only possible option to secure this area under the project's funding constraints.

After all contaminated materials were secured and covered, a security fence was erected around the material staging area until disposal strategies could be formulated. These strategies were based on analytical results and the project's funding constraints. OHM was demobilized on April 10, 1986 with the exception of the command post trailer which was required for communications for the 24-hour security service.

On July 9, 1986, an additional procurement request in the amount of $40,000 was approved, thus setting the ERCS ceiling at $290,000.

OHM was remobilized on July 14, 1986 to begin loading contaminated materials into roll-off containers for disposal. A total of 16 truckloads of hazardous waste was transported to final disposal at the SCA Chemical Services facility in Model City, New York. One drum of PCB material was disposed of at the General Electric Company Facility in Philadelphia, Pennsylvania.

IV. RESOURCES COMMITTED

A. Initial Funding Request

On February 14, 1986, an action memorandum, submitted by the OSC for $697,475, was approved by the Regional Administrator. Due to limited regional funds, the procurement request for ERCS was issued in the amount of $250,000 on February 25, 1986. On July 9, 1986, an additional procurement request in the amount of $40,000 was approved, thus setting the ERCS ceiling at $290,000.

A copy of the action memorandum can be found in Appendix B of this report.

B. Total Cost Summary (Estimated)

1. Extramural	
ERCS (Prime Contractor)	$275,249
TAT	25,133
USCG/AST	14,192
Total Extramural	$314,574
2. Intramural	
EPA	$ 3,635
TOTAL ESTIMATED PROJECT COSTS	$318,209

SECTION IV

RESOURCES COMMITTED

Bensalem Drum Dump Site
Federal On-Scene Coordinator's Report
RESOURCES COMMITTED (continued)

C. ERCS Daily Cost Summary (Estimated)

Date	Daily Cost	Total Costs to Date	Project Ceiling
3/17/86	$ 5,054.11	$ 6,350.64	$250,000
3/18/86	4,628.34	10,978.98	250,000
3/19/86	5,613.16	16,592.14	250,000
3/20/86	5,340.03	21,932.17	250,000
3/21/86	4,748.75	26,680.92	250,000
3/22/86	908.07	27,588.99	250,000
3/23/86	669.97	28,258.96	250,000
3/24/86	4,832.33	33,091.29	250,000
3/25/86	5,650.66	38,741.95	250,000
3/26/86	5,548.74	44,290.69	250,000
3/27/86	5,780.43	50,071.12	250,000
3/28/86	567.30	50,647.42	250,000
3/29/86	1,754.90	52,402.32	250,000
3/30/86	446.75	52,849.07	250,000
3/31/86	4,555.82	57,404.89	250,000
4/01/86	5,822.61	63,227.50	250,000
4/02/86	6,444.84	69,672.34	250,000
4/03/86	5,019.03	74,611.12	250,000
4/04/86	6,069.37	80,680.49	250,000
4/05/86	475.90	81,199.16	250,000
4/06/86	447.26	81,646.42	250,000
4/07/86	15,906.73	97,422.09	250,000
4/08/86	3,361.86	100,783.95	250,000
4/09/86	13,371.10	114,155.05	250,000
4/10/86	4,664.19	118,819.24	250,000
4/11/86	809.43	119,628.67	250,000
4/12/86	320.44	119,949.11	250,000
4/21/86	1,960.75	121,909.86	250,000
4/22/86	663.00	122,572.86	250,000
to 5/05/86	7,798.52	130,371.38	250,000
to 5/08/86	9,441.06	139,812.44	250,000
to 5/15/86	5,010.98	144,823.42	250,000
5/28/86	2,536.86	147,360.28	250,000
6/16/86	4,604.84	151,965.12	250,000
as noted	939.50	152,904.62	250,000
to 6/30/86	4,469.32	157,393.94	250,000
to 7/13/86	3,522.12	160,896.06	$290,000
7/14/86	4,232.96	165,129.02	290,000
7/15/86	29,748.15	194,877.17	290,000
7/16/86	24,363.06	219,240.23	290,000
7/17/86	39,315.56	258,555.79	290,000
demobe 7/18/86	2,578.49	261,314.28	290,000

Bensalem Drum Dump Site
Federal On-Scene Coordinator's Report
RESOURCES COMMITTED (continued)

D. ERCS Invoice Summary

Invoice	Date	Invoice Total	Total Costs to Date	Project Ceiling
1	04/07/86	$26,303.20	$ 26,303.20	$250,000
2	05/19/86	59,488.60	85,791.80	250,000
3	06/17/86	48,699.56	134,491.36	250,000
4	06/27/86	5,718.51	140,209.87	250,000
5	08/02/86	15,455.40	155,665.27	290,000
6	08/26/86	7,633.07	163,298.34	290,000
7	09/30/86	3,245.34	166,543.68	290,000
8	11/25/86	41,266.98	207,810.66	290,000
9	01/23/87	66,773.11	274,583.77	290,000
10	06/24/87	- 437.16	274,146.61	290,000
11	01/28/87 (Final Definitization)	1,102.39	275,249.00	290,000

SECTION V

EFFECTIVENESS OF THE REMOVAL

V. EFFECTIVENESS OF THE REMOVAL

A. Activities of Various Agencies

1. Potential Responsible Parties

EPA Enforcement performed an investigation into the prior ownership of parcels involved at the Bensalem Drum Dump. The potential responsible parties were deceased and their corporation not longer existed. The property owner at the time of this removal (Mr. Modi) had purchased the parcel while the OSC's Action Memorandum was in concurrence. At the time of this writing, Enforcement had not attempted any recovery actions against Mr. Modi.

2. State and Local Forces

Pennsylvania Department of Environmental Resources (PADER) coordinated State support to the OSC and discussed potential State involvement with the EPA removal project. Mr. Mike Panella acted as liaison betwen the OSC and the various State agencies as to site activities.

The OSC received cooperation from various local agencies. The Bensalem Police Department increased evening patrols in the area to limit unauthorized entries. The local fire department provided water to support site decontamination needs. Deliveries were made several times per month by fire department volunteers.

The Bucks County Department of Health acted as liaison with the PADER during the removal action. Periodic updates were made by the OSC to keep all agencies alerted to site developments.

3. Federal Agencies and Special Forces

The EPA Emergency Response Section initiated the removal action with the assistance of several other EPA divisions. EPA Enforcement conducted a detailed investigation in the attempt to locate a potential responsible party.

A. Activities of Various Agencies (continued)

3. Federal Agencies and Special Forces (continued)

During negotiations with current landowners and leasees, the Office of Regional Counsel (Lidia Isales) advised the OSC on legal matters. Liability issues were also discussed.

The EPA Office of Public Affairs (OPA) assisted the OSC with on-site media relations. Pete Bentley was on scene to conduct television interviews and to issue official press releases. All newspaper inquiries were directed to OPA personnel.

The United States Coast Guard/Atlantic Strike Team (USCG/AST) assisted the OSC by supplying a well-equipped command post. USCG/AST members provided contractor and safety monitoring services to ensure accurate billing and worker safety on the site. USCG/AST also gave valuable input on removal techniques and decontamination procedures.

The Centers for Disease Control (CDC) prepared a health assessment of site conditions based on site information and analytical data obtained during the preliminary assessment phase. The established health threat was instrumental in obtaining the approval of CERCLA funding.

4. Contractors

The OSC received invaluable support from the Roy F. WESTON Technical Assistance Team (TAT). TAT was responsible for cost tracking, site documentation, site safety and file compilation in addition to their normal duties of technical support. TAT also performed the preliminary assessment and sampling of the local water.

O.H. Materials, Inc. (OHM), as the ERCS contractor, provided all cleanup personnel and equipment to perform the removal. Disposal and transportation of on-site wastes were arranged using the required three-bid system. Manifests were prepared by OHM for signature by the OSC.

B. Disposal Methods and Quantities Removed

The drummed wastes and contaminated soil were tested for compatibility using the ERCS mechanism. O.H. Materials bulked the materials based on the compatibility results. This bulking resulted in a more cost-effective disposal. Seventeen drums of PCB material were disposed of at the SCA Facility in Model City, New York. 33.175 tons of PCB/heavy metal-contaminated soil and drum debris were also sent to SCA Landfill. One drum of miscellaneous PCB material was disposed of at General Electric Company in Philadelphia, PA.

The waste material was transported under manifest numbers as presented in Appendix L of this report.

SECTION VI

CHRONOLOGY OF EVENTS

VI. CHRONOLOGY OF EVENTS

This section gives a brief summary of the major events as they occurred at the Bensalem Drum Dump. A more detailed description of activities can be found in Appendix J (POLREPS) of this report.

3/17/86

0830 hours - OSC met with township officials to brief them regarding proposed site operations.

0900 hours - ERCS contractor arrived at the site with personnel to establish site operations including command post and decontamination facilities.

1000 hours - ERT members arrived at the site to evaluate the feasibility of on-site or in-situ waste treatment.

1300 hours - OSC notified PADER and Bucks County Health Department of site activities and removal strategies.

1400 hours - USCG/AST at the site with communications command post.

3/18/86

0800 hours - Equipment and supplies continued to arrive in preparation to begin cleanup activities.

0840 hours - The OSC contacted the Bucks County Emergency Management Agency to inform them of intended site activities.

1000 hours - OSC, USCG/AST and TAT made a site entry to examine the condition of the drummed material on the site.

1115 hours - Pete Bentley (EPA OPA) arrived at the site to assist the OSC by briefing television news teams. Prior to their official briefing at the site, a news crew entered the Exclusion Area prompting the OSC to confiscate and decontaminate their shoes.

1500 hours - TAT began perimeter air monitoring to ensure community safety.

3/19/86 0800 hours - ERCS commenced work on staging drums which were located in the wooded section of the site. These drums were the closest to the residential area.

0840 hours - The OSC spoke with Mr. Modi, potential responsible party, (PRP), to brief him on current analytical data and proposed site activities.

3/20/86 0800 hours - ERCS continued to stage drums while the USCG/AST monitored site safety.

1020 hours - Mike Penella and Paul Ciotta (PADER) were briefed by the OSC regarding site operations.

3/21/86 0800 hours - ERCS continued to stage drums. A total of 71 drums had been staged to date.

1000 hours - Vic Janosic and Bill Steuteville (EPA Enforcement) arrived at the site to speak with Mr. Modi and his lawyer concerning possible enforcement actions. In response to a previous FYI request, the OSC provided Mr. Modi with a copy of the site file material.

1630 hours - At the request of the OSC, weekend security was instated.

3/24/86 0800 hours - ERCS continued to stage drums from the main drum pile. A total of 101 drums had been staged to date.

1530 hours - Due to a delivery error by a subcontractor, site activities were suspended due to a lack of breathing air.

3/25/86 0800 hours - ERCS continued to stage and overpack drums from the main drum pile while the USCG/AST continued to provide on-site air and safety monitoring.

3/26/86 0800 hours - ERCS continued to stage and overpack drums from the main drum pile.

0930 hours - The OSC spoke with Mr. Stewart and Mr. C.R. McAnnally (PRP) regarding contaminants found and general legalities involving PRPs.

3/27/86 0800 hours - ERCS commenced work on staging drums that were located in the steep embankment of Mill Creek located on the northwestern edge of the site.

0900 hours - ERCS constructed a berm around the staging area to restrict any release of staged contaminants in the event of heavy rainfall.

1415 hours - The Response Manager was instructed to dismiss Dan Felton (equipment operator for OHM) by the OSC due to a consistent violation of the site safety protocol.

3/31/86 0800 hours - ERCS continued to stage and overpack drums found on the embankment and in the stream bed of Mill Creek. A total of 186 drums have been staged to date.

1300 hours - TAT and USCG/AST performed a sweep of the area to identify and flag contaminated soil areas and any drum fragments left behind.

1520 hours - A propane cylinder was found at the site and was identified as belonging to U.S. Compressed Gas. Contact was made with the owner for removal of the cylinder.

4/02/86 0800 hours - ERCS continued to excavate and stage potentially contaminated soil. Approximately 200 cubic yards have been staged to date.

1110 hours - Mr. Modi at the site to meet with OSC Meyer concerning the decision of EPA ORC and EPA Enforcement to decline his offer to erect the fence around the staging area due to legal constraints.

1530 hours - ERCS completed drum and soil sampling. Samples to be analyzed by Wadsworth Laboratories utilizing the ERCS mechanism.

4/07/86 0800 hours - ERCS continued excavation of potentially contaminated soil. Due to weekend precipitation, site operations were complicated by muddy site conditions.

1050 hours - ERCS installed filter fencing to control site sedimentation and erosion in areas where soil excavation had been performed.

1600 hours - TAT sampled a residential well located on the adjoining property owned by Mr. Marucci.

1630 hours - ERCS completed staging potentially contaminated soil. Approximately 325 cubic yards of soil have been staged to date.

4/08/86 0800 hours - Due to thunder showers, site operations suspended for the day.

1345 hours - USCG/AST command post, equipment and personnel demobed from the site due to services no longer being needed as a cost savings measure.

4/09/86 0800 hours - ERCS installed a clay cap where the main drum pile had been located.

1245 hours - ERCS covered all staged materials with a double layer of visqueen to secure site while disposal strategies were being formulated.

1400 hours - TAT and ERCS toured the secured site. No organic vapor levels above background were detected with a P.I.D.

4/10/86 0800 hours - ERCS commenced decontamination procedures of equipment for demobilization until disposal options were formulated based on analytical results.

1000 hours - Fencing contractors began erecting a fence around the staging area to be finalized on 4/12/86.

1420 hours - ERCS and TAT demobed from the site. EPA command post and 24-hour security guards to remain at the site until disposal activities begin.

4/12/86 0900 hours - Fencing contractors completed erecting the fence around the staging area. The gate was chained and locked; keys left in the command post with the security guard.

4/16/86 Compatibility report utilizing preliminary analytical data compiled for determination of disposal options. Included were transport and disposal estimates for three facilities based on this information.

5/08/86 Analytical report completed and delivered to the OSC.

6/18/86 1740 hours - ERCS at the site to replace the visqueen that had blown off of a staged pile of contaminated soil. They mistakenly left the site with the key to the gate.

6/19/86 1530 hours - OSC at the site with a National Geographic film crew, ERS Chief (Tom Massey), ERT Senior Scientist (Dr. Joe Lafornara) and other EPA, ERT and TAT personnel to perform soil gas monitoring and to determine the condition of the drums stored at the site since their staging. National Geographic filmed the activities as part of their documentary on hazardous waste that is being prepared for airing on Public Television later this fall.

1700 hours - ERT performed soil gas sampling across the clay capped area. A level of 15 ppm was found at one location.

6/19/86 — 1759 hours - OSC and ERT made an entry and monitored the atmosphere under the plastic covering over the drums with a HNU prior to removing the covering. Levels of organic vapor in excess of 200 ppm were found under the covering.

6/25/86 — 0745 hours - OSC at the site to investigate the notification by the security guards that the visqueen covering the staged drums was blown off by the wind. OSC notified Mr. Robert Ohneck of OHM to dispatch two technicians to rectify the situation.

1030 hours - Two ERCS technicians at the site to recover the exposed drums.

7/09/86 — The OSC obtained additional $40,000 funding commitment to be added to the ERCS ceiling for removal and disposal of staged contaminants. The new ceiling is now $290,000.

7/14/86 — 0800 hours - Site operations resumed for removal and disposal of staged contaminants. TAT and John Bowes (OHM) at the site to discuss and set up removal operations.

0945 hours - ERCS mobilized at the site for disposal of waste from the site. As the CAT 955 was being transported onto the site by an over-the-road tractor trailer truck, it caught and brought down a power line and a 200-pair telephone line.

1200 hours - ERCS bulked contaminated soils with compatible solids in drums for final disposal as well as segregating the 18 drums that registered concentrations greater than 50 ppm of PCBs in the analytical results.

7/15/86 — 0600 hours - Medical monitoring personnel (MEDEVAC representative Dwight Bitting, and Bensalem Rescue Squad personnel) were at the site due to heat stress potential. After reviewing signs of heat stress with the technicians, their vital signs were recorded to provide baseline health information for subsequent monitoring.

0620 hours - ERCS commenced stabilizing drums and bulking compatible solids for removal.

7/15/86 0920 hours - Arrival of five 30-cubic yard, 18-wheel hydraulic dump trucks for hauling the contaminated wastes to the disposal facilities. Ten additional dump trucks and one 18-wheel box truck for hauling the overpacked drums to be delivered on subsequent days. Vehicle preparation for loading consisted of lining the bed of the truck with plastic and weighing the truck empty.

1045 hours - Manifests delivered to the command post to be used for the removal of the contaminated wastes were accompanied by a "Landburial Ban Waste Certification Form" that was unfamiliar to the OSC, TAT and the ERCS response manager. TAT contacted Mr. Ed Belmore of the N.Y. State Department of Environmental Conservation (716-847-4585) for guidance in filling out the form. He stated that this form was not needed since the waste was being shipped as B007 and that it was intended for RCRA waste only. In meeting the needs of federal and state regulations, only the manifests were to be shipped with the trucks hauling the wastes.

1120 hours - Loading of the contaminated material into the trucks commenced. Weight determination using portable scales was computated to assure legal load limits before they were manifested off the site.

1220 hours - Downtime for the CAT 955 (property of OHM) due to an oil leak caused a temporary delay of the loading process.

1240 hours - With the CAT 955 repaired and operational, loading resumed and the five trucks were manifested and off the site as of 1448 hours this date.

7/16/86 0600 hours - ERCS stabilized and solidified the contaminated material for removal. Medical monitoring continued due to daily projected high temperatures.

0640 hours - Ten 30-cubic yard 18-wheel hydraulic dump trucks began arriving at the site in 20-minute intervals and commenced truckbed preparation for subsequent loading.

0830 hours - Loading of the trucks commenced followed by weight/load control measures and documentation procedures.

7/16/86

1305 hours - Downtime occurred when the CAT 955 developed a major hydraulic leak with four out of the ten trucks loaded and manifested off the site.

1410 hours - Repair of the CAT 955 was not completed and consequently, the ERCS personnel were sent home for the day. The unloaded trucks were therefore instructed to return to their headquarters and to be prepared to be loaded 7/17/86.

1538 hours - ERCS response manager and TAT were informed by Diane McCalister, a representative of the landfill receiving the manifested waste, that since the "Landburial Ban Waste Certification Form" was not delivered with the truckloads of contaminated material shipped on 7/15/86, that permission to unload would be withheld until delivery of the delinquent paperwork that is required by their facility. Assistance was given in the completion of the forms for subsequent and previous shipments. The landfill would accept the consigned material as soon as their paperwork was delivered.

1730 hours - With the backlog of "Landburial Ban Waste Certification Forms" completed and signed by the OSC, one of the truck drivers at the site delivered them to the drivers already waiting at the landfill.

7/17/86

0915 hours - The OSC was notified by the receiving landfill that the necessary paperwork they required was fulfilled and that shipping could proceed.

0944 hours - Loading of the trucks commenced followed by weight/load control measures and proper documentation.

1405 hours - The CAT 955 (owned by OHM) sprung another hydraulic leak causing site operations to be delayed until repaired.

1500 hours - Loading commenced with the repair of the CAT 955 completed.

1520 hours - Loading of overpacked drums into an 18-wheel box truck commenced. One drum of miscellaneous PCB material to be removed on 7/18/86.

7/18/86

0620 hours - ERCS commenced site stabilization with the placement of topsoil and grass seed on the staging and clay cap area.

0805 hours - Final staged drum loaded and manifested off the site. All known contaminants have been removed for final disposal.

1209 hours - Mr. Modi (property owner) at the site for visual inspection and to receive the copy of Enforcement Status Report that he had previously requested.

1210 hours - ERCS began decontamination procedures of equipment used at the site in preparation for demobilization from the site.

1314 hours - ERCS demobilized all equipment and personnel from the site. OSC and TAT toured the site and performed final photo-documentation of this phase of the project.

1320 hours - All equipment and personnel were secured from the site.

SECTION VII

PROBLEMS ENCOUNTERED AND RECOMMENDATIONS

VII. PROBLEMS ENCOUNTERED AND RECOMMENDATIONS

The primary problem encountered during the Bensalem Drum Dump Removal was not field related. The lack of adequate funding forced the OSC to operate under close budgetary constraints while not compromising the safety of the local residents or site workers. A series of innovative and cost saving measures had to be implemented to complete the removal operation. One such cost saving measure was eliminating large overtime and weekend hours for the ERCS personnel. This significantly cut costs, but it also allowed the hazards to human health and the environment to exist longer than was necessary.

In the early stages of the cleanup, several safety violations were committed by the ERCS contractor. With the help of the USCG/AST, these problems were pointed out and remedied during the daily morning safety meetings.

After all waste streams were staged, the site was demobed while waste samples were analyzed for disposal. During the demobed period, 24-hour security was maintained in addition to the command post facility. Additional funding was needed in order to complete the disposal phase of this removal action. Additional funding was delayed due to a regional lack of funds caused by the delay by Congress to pass Superfund legislation. This delay resulted in increased spending on security and standby equipment. These delays would not have occurred if the dollar amount in the original action memo had been approved.

SECTION VIII

LEGAL ASPECTS

VIII. LEGAL ASPECTS

EPA Enforcement conducted an extensive investigation into the historical ownership of this property. All original responsible parties are deceased and the corporation of record has been dissolved.

The property owner at the time of this removal (Mr. Modi) purchased the property after the OSC had submitted the funding Action Memorandum.

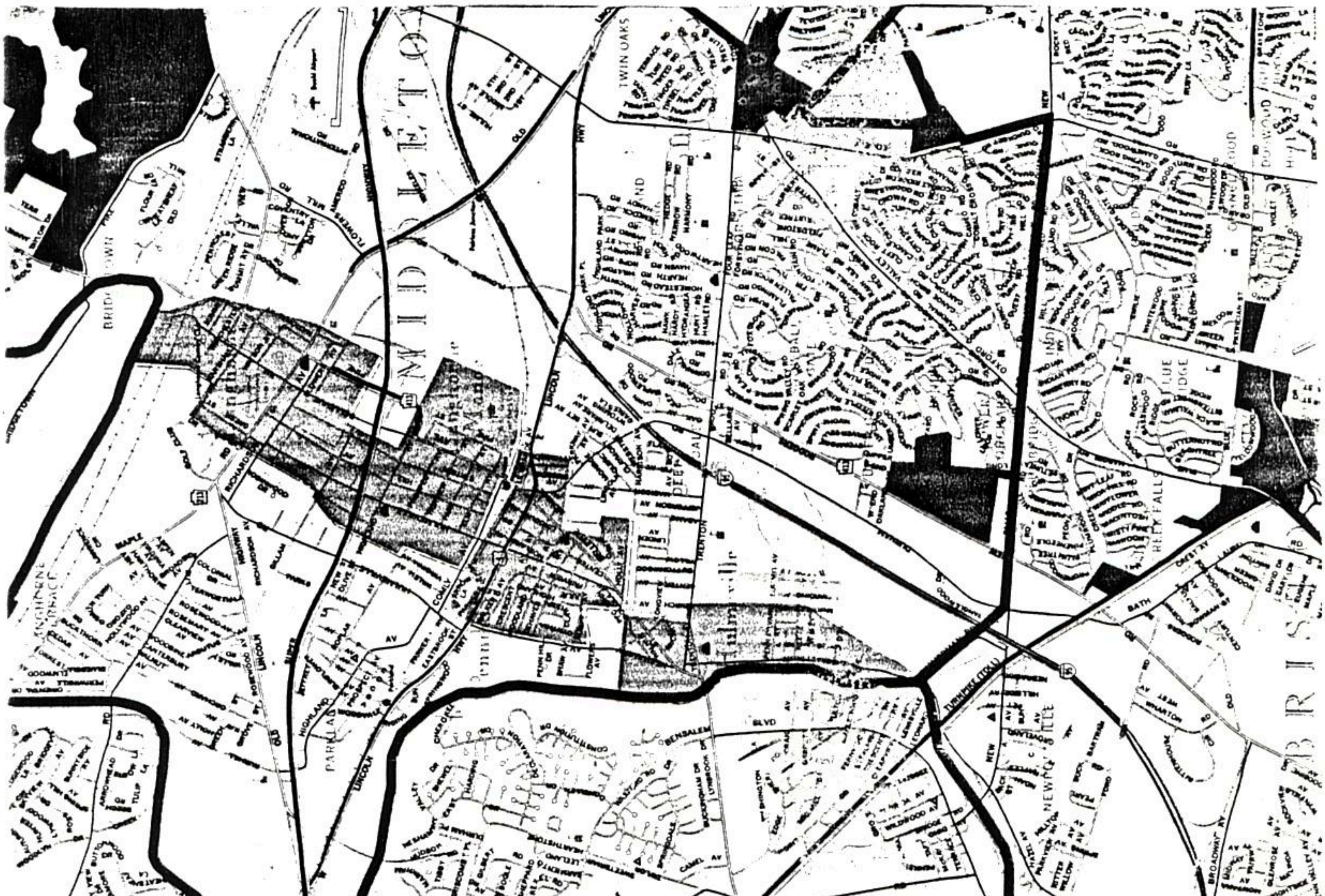
At the time of this writing, EPA Enforcement has not taken any cost recovery actions to date and does not anticipate any future recovery actions associated with this site.

SECTION IX

APPENDICES

APPENDIX A

MAPS


TWIN OAKS
BRISTOL
ROCKHILL
MECHANICSVILLE
HULMEVILLE
BENSALEM
BROADWAY
TURNPIKE (TOLL)
LINCOLN
STREET

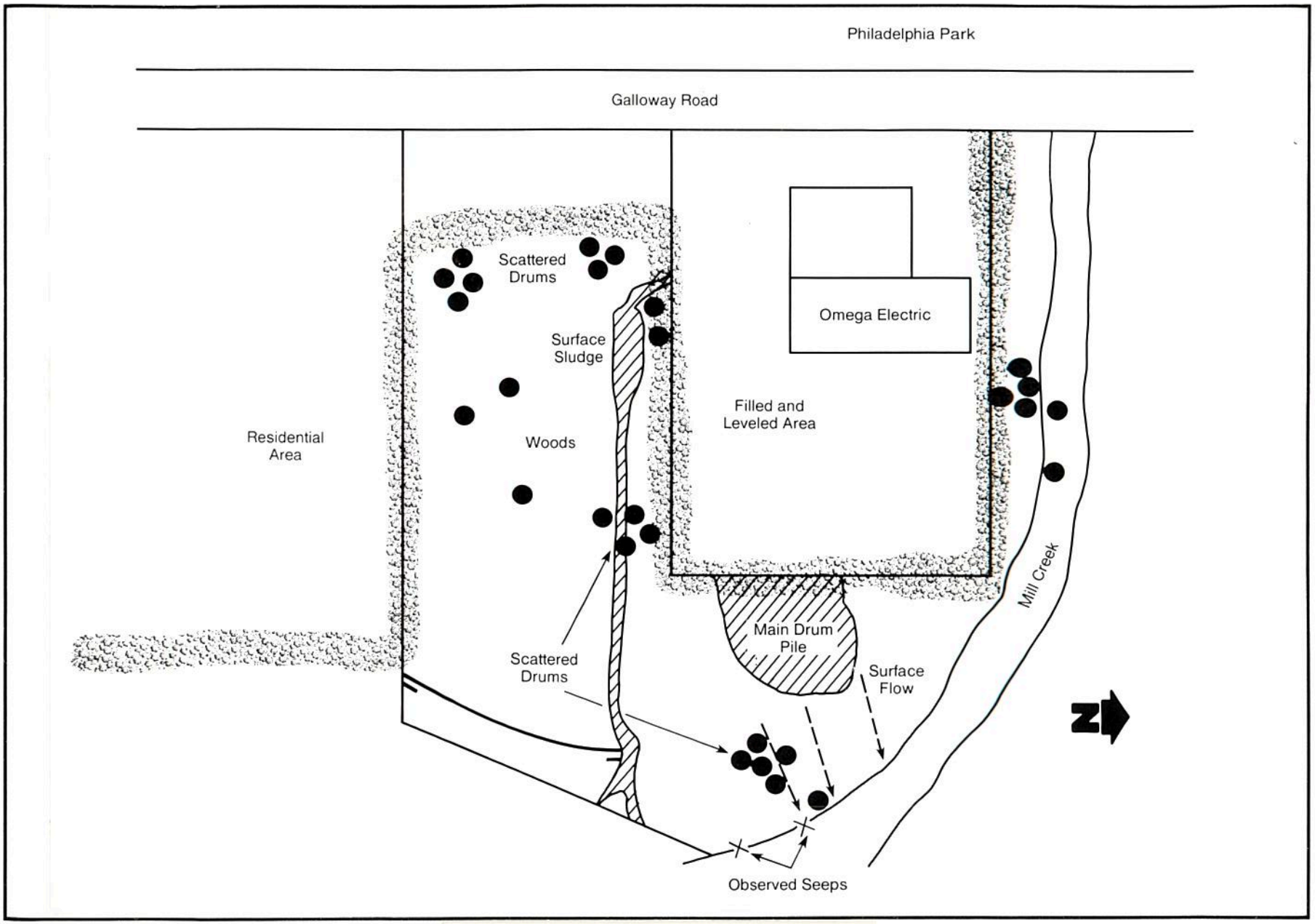
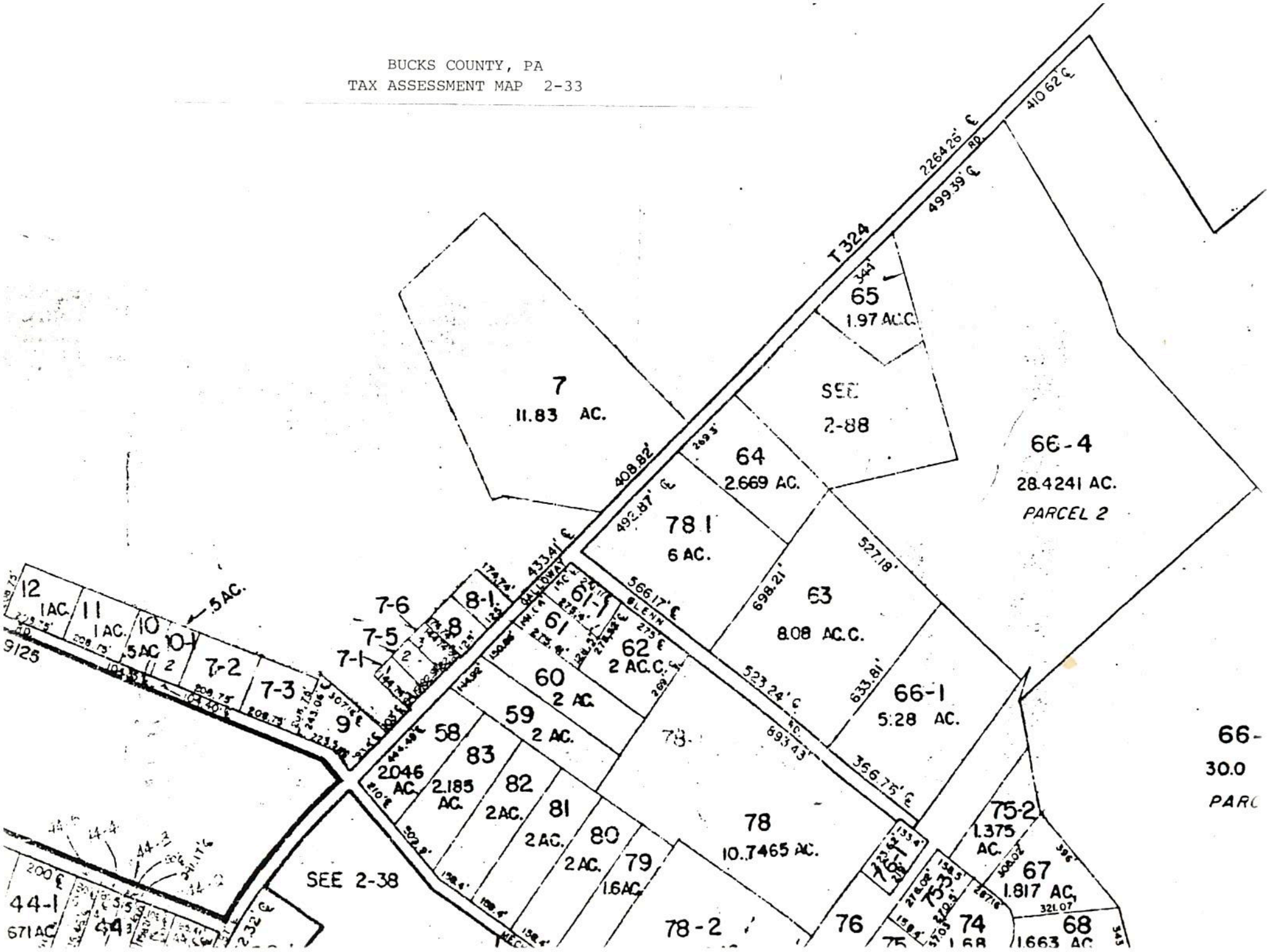


FIGURE **BENSALEM DRUM DUMP SITE SKETCH**

BUCKS COUNTY, PA
TAX ASSESSMENT MAP 2-33



APPENDIX B

ACTION MEMORANDUM

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
841 Chestnut Building
Philadelphia, Pennsylvania 19107

SUBJECT: Immediate Removal Request for the Bensalem Drum Site, Bensalem, Bucks County, PA

DATE: Feb. 14, 1986

FROM: Roger L. Meyer, On-Scene Coordinator
Emergency Response Section (3HW22)

TO: James M. Seif
Regional Administrator (3RA00)

THRU: Stephen R. Wassersug, Director
Hazardous Waste Management Division (3HW00)

I. PURPOSE

This is an Immediate Removal Request to abate the immediate and significant threats to the public health and the environment as posed by the Bensalem Drum Site, Bensalem, Bucks County, Pennsylvania. These threats include direct contact with toxic heavy metals in contaminated soils, ingestion of hazardous materials due to bioaccumulation in the aquatic life (fish) in Mill Creek, or in local agricultural products which are irrigated with creek water. Seeps from the site drain directly into Mill Creek and sampling has revealed significant contamination from heavy metals. The requested amount of $697,475 will be used to erect a security fence, perform measuring and sampling to determine waste characterization and extent-of-contamination, evaluate disposal alternatives and to stage, remove and transport the hazardous substances for final disposition. Evidence of the direct contact threat and the potential for offsite migration (stream contamination) has been confirmed by visiting the site and sampling. Concurrence as to the necessity of an Immediate Removal has been obtained from the Centers for Disease Control and EPA's Regional Toxicologist.

II. BACKGROUND

The Bensalem Drum Site was formerly the location of a drum reconditioning facility situated north of Keystone Race Track, off Galloway Road in Bensalem, Pennsylvania. The site is unsecured and abandoned and consists of approximately three acres in a mixed residential/commercial area. Approximately 100 people reside within 1/4-mile of the site. Two homes are situated less than 100 yards from the site. Children's toys have been found among several 55-gallon drums on the site. This evidence strongly suggests that children use the site as a play area. The back yard of one of the homes is located directly adjacent to the site, and has a swing set and sliding board located approximately 30 yards from the drums.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
841 Chestnut Building
Philadelphia, Pennsylvania 19107

SUBJECT: Justification for Approval of an Immediate Removal Action at the Bensalem Drum Site, in Bensalem Township, Bucks County, Pennsylvania

DATE: Feb. 14, 1986

FROM: James M. Seif
Regional Administrator (3RA00)

TO: Dr. J. Winston Porter
Acting Assistant Administrator for Solid Waste and Emergency Response (WH562-A)

ISSUE

The attached CERCLA funding request pertains to the Bensalem Drum Site, Bensalem Township, Bucks County, Pennsylvania.

A preliminary assessment, performed in accordance with the National Contingency Plan by my staff and State personnel has identified that there exists an immediate and significant risk of harm to human life and the environment posed by the presence of extensive heavy metal and chemical soil contamination, drums of unknown material, and the presence of airborne organic vapors in the Bensalem Drum Site, Bensalem Township, Pa.

BACKGROUND

Section 104 of CERCLA calls for the initiation of an Immediate Removal Action whenever there is a release or a substantial threat of release into the environment of any hazardous substance which may present an imminent and substantial danger to the public health and welfare.

Because of the unknown extent of the contamination, it may be necessary to obtain an exemption to the $1 million and/or 6 month limit after evaluation of the results of Phase I of the removal action.

Pursuant to Delegation of Authority 14-1-A (4/16/84), which authorizes the Regional Administrator to approve CERCLA removal actions with a total cost of less than $1,000,000, I have approved the use of CERCLA monies to control and stabilize the situation on the Bensalem Drum Site.

Attachments

II. BACKGROUND (continued)

Keystone Race track, which is located across Galloway Road south of the dump site, hosts several thousand visitors six nights each week during the racing season.

On March 6, 1985, a preliminary assessment was performed by the Technical Assistance Team (TAT). Photographic and written documentation were obtained, as were selected soil and drum samples. The soil sampling locations were chosen in order to characterize the runoff patterns towards Mill Creek, which is less than 50 yards from the main drum pile.

Drums were observed in severely deteriorated condition, many being so badly rotted away that their contents were exposed.

Sampling data demonstrates the presence of cadmium, chromium, copper, lead, zinc, antimony, mercury and phenols in the local soils and also present in the sampled drums. These materials are present in significant quantities (see Table 1 - Soil and Drum Sampling Results) and are listed as hazardous substances pursuant to Section 101[14] CERCLA. During the assessment at the site, approximately 150 drums were observed in various stages of deterioration with evidence of prior leakage of their contents onto the soil. The sampled drums were found to contain solids and sludges. Seeps, which usually indicate buried materials, were observed flowing into Mill Creek. Local residents reported that drum and sludge burial activities were performed onsite in areas which contained fill materials. Two residents reported that the former facility operator dumped sludge into a small pond or lagoon. This lagoon has since been buried.

During a subsequent site visit on April 18, 1985, airborne vapor readings in excess of 2000 ppm were obtained above one drum with ambient air readings between 0-5 ppm across the site. High levels could indicate a potential fire and/or explosion hazard.

The Bensalem Drum site is not on the National Priorities List (NPL), nor is it being considered for inclusion at this time.

TABLE 1 - Soil and Drum Sampling Results (metals)

	D01	S02	S03	D04	S05	D06	D07	S08	S09	D10	TLV*
Cadmium	1.5	18.5	1.8	3.2	3.4	5.4	204	0.35	1.6	0.25	.05
Chromium	11.3	214	32.6	16.7	21.0	15800	754	3.2	8.0	<1.0	.05
Copper	11.6	310	36.4	18.7	10.7	38.6	3430	1.6	7.9	2.0	1.0
Lead	26.3	1260	88.5	56.0	46.3	1060	4760	57.0	36.4	2.4	.05
Zinc	68.5	1590	209	1140	460	23100	6830	29.3	10400	36.5	5.0
Antimony	309	340	270	290	76.0	220	2000	9.0	30.0	16.0	.5
Mercury	<0.05	0.3	0.15	<0.05	<0.05	<0.05	25	<0.05	<0.05	<0.05	.01
Phenols	<5.0	<5.0	<5.0	<5.0	<5.0	<7.7	252	<5.0	<23.0	<0.5	19.0

II. BACKGROUND (continued)

In addition to the metals listed in Table 1, the following organic chemicals were found:

Sample #	Compound
D01	ethenyl pyridine
	dihydro - 1H - indole
	methyl imidazolyl guinoline
S02	PCB (Aroclor 1248)
S03	No organic components
D04	No organic components
D05	bis (dimethylethyl) methyl phenol
D06	trimethylhexanone
D07	PCB (Aroclor 1248)
	methyl hexanal
	methyl hexanone
	butenediol
	methyl propyl benzene
	dimethyl ethyl benzene
	tetramethyl pentane
	trimethyl decane
	dimethyl decane
	dimethyl doderane
	chloromethyl isoproopyl benzene
	dimethyl undecane
	trimethyl nonane
S08	PCB (Aroclor 1221)
S09	hydroxy methyl phenyl ethanone
D10	PCB (Aroclor 1248)
	methyl octene
	heptanal
	methyl hexanone
	decenal
	octanoic acid
	dimethyl pentane
	cyclohexenol
	hexadecanoic acid
	methyl undecene

Due to the complexity of the sample matrix and the limited analytical funds available, these materials could not be accurately quantified, however, each compound was well above detection limits and identifiable above all background masking.

II. BACKGROUND (continued)

D - Indicates drum samples, S - indicates surface soil samples.
All results reported in ppm.
*TLV = Threshold Limit Values, occupational health standards for 8-hour time weighted average airborne exposures to industrial contaminants.

III. THREAT

The potential for direct contact with spilled/dumped hazardous materials is significant based on the following:

1) The migration of heavy metals on and off site has been documented. Site drainage is towards the north-northwest and Mill Creek. Soil and drum samples demonstrated that hazardous substances such as antimony, cadmium, chromium, copper, lead, zinc, mercury and phenols are being uncontrollably discharged into the environment.

2) The dump site is not fenced, essentially providing unrestricted access to the drummed and spilled hazardous substances.

3) The proximity of the drum site to Mill Creek represents the potential for substantial migration of contamination into this waterway via surface runoff and dump seeps. The local farming community utilizes Mill Creek for irrigation of crops. Many of the documented hazardous substances have the ability to accumulate in plants and thereby bioaccumulate in the food chain.

4) Vapor readings in excess of 2000 ppm were observed onsite, which could indicate a potential fire/explosion hazard.

5) Direct exposure to the documented hazardous substances through inhalation of windswept chemical-laden dusts, ingestion, or skin/eye contact can cause headache, muscular weakness, nervous system disorders, liver and kidney disease, collapse, coma and possibly death. The toxic heavy metals may accumulate in the body and eventually reach toxic levels, especially in young children.

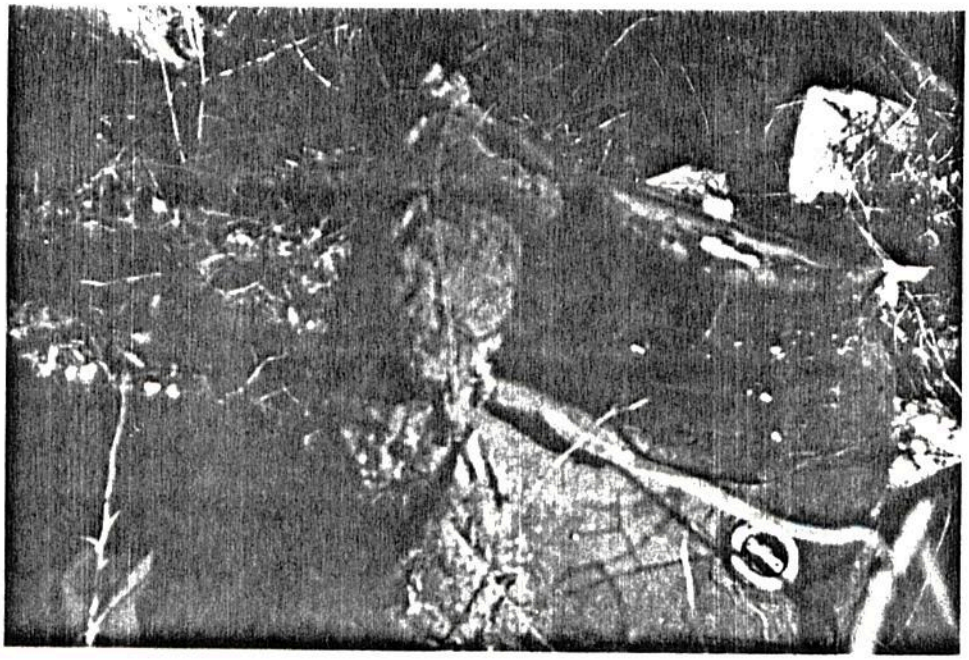
IV. ENFORCEMENT

Refer to attachment: Confidential Enforcement Status.

TATM during preliminary assessment of the unsecured drum pile.

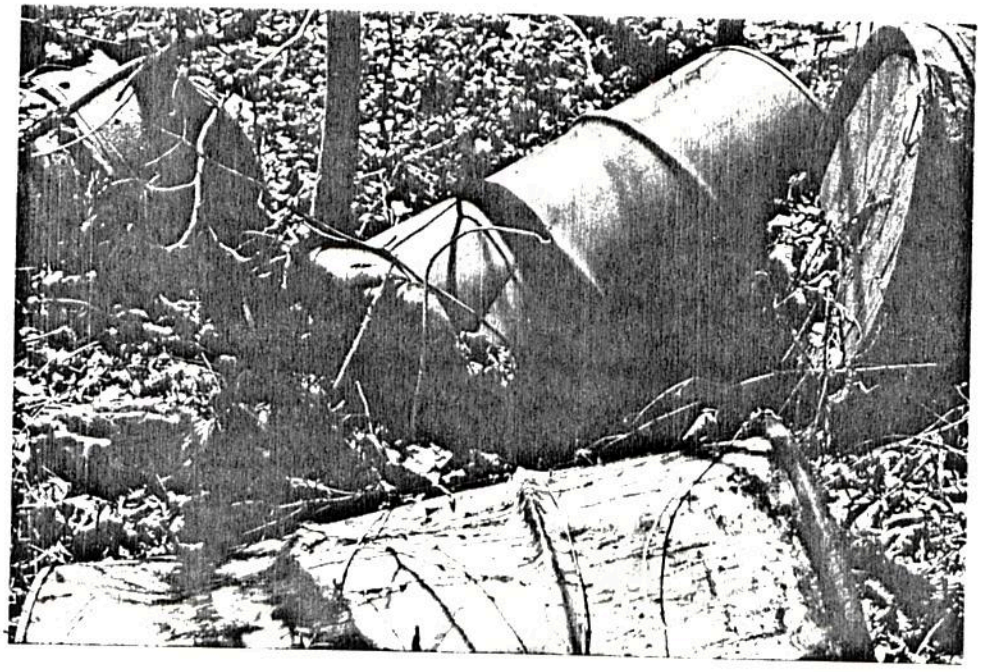
TATM taking organic vapor readings during the preliminary assessment.

View of a drum on the banks of Mill Creek.

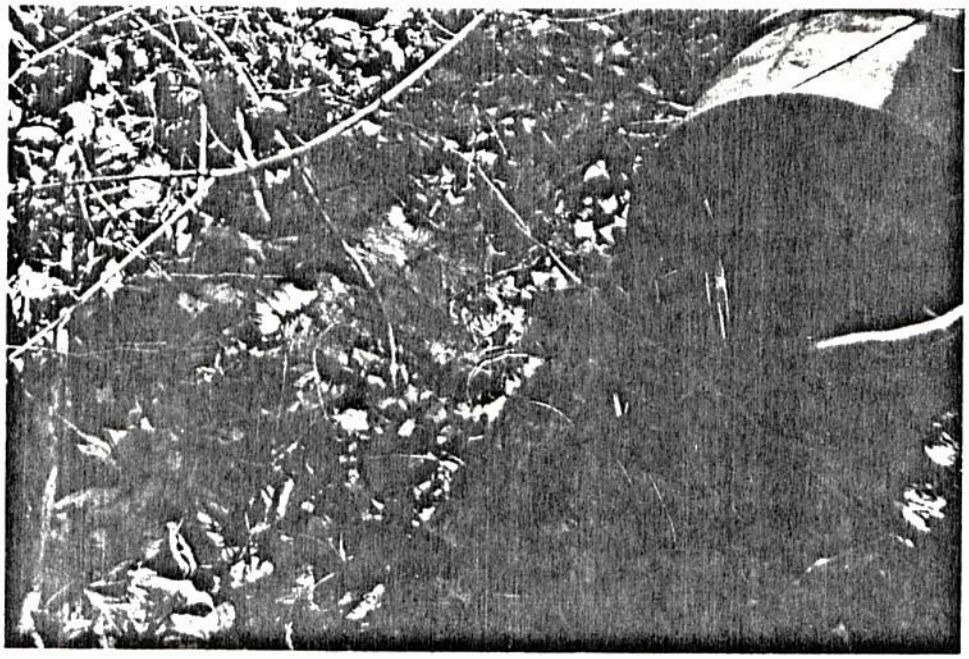


View of a crushed and leaking drum.

View of an open drum with contents pouring onto the ground.



View of deteriorated and leaking drums.



Visual evidence of leaking drums.

View from drums downslope toward Mill Creek.

View of the main drum pile.

TATM performing sampling in gulley leading to Mill Creek.

View of drums near filled and leveled area.

V. PROPOSED PROJECT AND COSTS

The OSC proposes to erect a security fence to restrict access to the contaminated areas, perform measuring and sampling to determine complete waste characterization and delineate extent-of-contamination, evaluate disposal alternatives and stage, remove and transport all identified hazardous materials to final disposal.

Phase I of this project will include installation of the security fencing and performance of the measuring/sampling plan and evaluation of data, and will require four to six weeks for completion.

Phase II will involve the removal and disposal action which will require three to four weeks. The entire Immediate Removal Action will be completed within approximately ten weeks of funding authorization.

Estimated Costs	Phase I	Phase II
Cleanup Contractors (ERCS)	$115,000	423,000
Technical Assistance Team (TAT)	18,000	27,000
USCG/AST	5,600	8,400
EPA/ERT	3,500	6,000
Subtotals	$142,100	464,400

Project Subtotal	$606,500
Other Costs(15%)	90,975
Project Total	$697,475

VI. REGIONAL RECOMMENDATION

Because conditions at the Bensalem Drum Site meet the NCP Section 300.65 criteria for an Immediate Removal, I recommend your approval of this Immediate Removal Request. The estimated total project costs are $697,475 of which $687,975 are for extramural costs. You may indicate your approval or disapproval by signing below.

APPROVE _____ DATE 9/14/86

DISAPPROVE _____ DATE _____

APPENDIX C

SITE SAFETY PROTOCOL

SITE/SAFETY PROTOCOL March 17, 1986

Bensalem Drum Dump
Bensalem, Lower Bucks County, PA

GENERAL

This protocol addresses the safety procedures that will be followed by any and all personnel visiting the site or involved in the CERCLA removal activity at the Bensalem Drum Dump Site. All personnel entering the site shall read and sign this safety plan. The protocol will remain in effect until the OSC certifies that the activity is terminated. It does not supercede any Federal OSHA or State or local regulations but is in addition to them. In the event of a conflict between this protocol and a regulation, the more stringent of the two will be in force.
Since data available at the present time does not allow a complete characterization of the barrelled waste on the site, levels of protection for personnel will be set in accordance with the hazard of the job function and location on-site as indicated on the attached diagram.

Respiratory Protection Program

All contractor and governmental personnel involved in on-site activities shall have a written respiratory protection program and prove that they are physically fit to wear a respirator. All personnel wearing air-purifying respirators on-site are required to be fit tested, while those wearing pressure-demand self-containing breathing apparatus or air-line apparatus, must be properly trained and experienced in their use. All respiratory protection equipment is to be properly decontaminated at the end of each workday.

Persons having beards or facial hair must not wear a respirator.

Training and Medical Monitoring Program

Personnel will have either formal training or on-the-job training for those tasks they are assigned to perform on the active site. All unfamiliar activities will be rehearsed beforehand.

All contractor and governmental personnel who are exposed to hazardous levels of chemicals shall prove that they are enrolled in a medical monitoring program.

General Safety Rules and Equipment

a. There will be no eating, drinking or smoking in the Exclusion Area or hot side of the Contamination Reduction Area.

b. All personnel must pass through the Contamination Reduction Area to enter the Exclusion Area.

c. An emergency eye wash will be on the hot side of the Contamination Reduction Area.

d. As a minimum, an emergency deluge shower/spray can is to be located on the clean side of the Contamination Reduction Area.

e. At the end of the work, all personnel working in the Exclusion Area shall take a hygenic shower.

f. All supplied breathing air shall be certified as Grade D or better.

g. Where practical, all tools/equipment will be spark proof, explosion resistant and/or bonded and grounded.

h. Fire extinguishers will be on-site for equipment or personnel fires only.

i. A first-aid kit will be on-scene at all times during operational hours. An oxygen inhalator respirator will be available. The location of these items on-site will be posted.

j. Persons having beards or facial hair must not wear respirators.

k. No work will be performed in the exclusion area during hours of darkness as determined by the site safety officer.

Morning Safety Meeting

A morning safety meeting will be conducted each day for all site personnel who sign a daily attendance sheet. The safety procedures, evacuation procedures, and escape procedures, as well as the day's planned operations, should be discussed.

CONTROL AT THE SITE

Access to the site will be restricted by a site security officer and banner guard installed during the immediate removal phase at this site and exit from the site shall be through the gate in the Contamination Reduction Area except in a life-threatening emergency.

All persons entering the site shall sign in and out at the OSC command post or with the site security officer.

DESIGNATION OF WORK AREAS AT THE SITE

The entire site will be divided into three areas: (1) Exclusion Area which known to be or have a potential for becoming contaminated: (2) the Contamination Reduction Area where decontamination of personnel and equipment exiting the Exclusion Area is performed; (3) the Support Area which is not contaminated.

The Exclusion Area (EA)

At the Bensalem Drum Dump Site, the Exclusion Area shall initially include all areas inside the banner guard.

The Contamination Reduction Area (CRA)

At the Bensalem Drum Dump Site, the Contamination Reduction Area will be located immediately outside the Exclusion area and will be delineated by roped off area.

The Support Area (SA)

At the Bensalem Drum Dump Site, the Support Area will be the area outside the Exclusion Area and Contamination Area.

Changes in Designation of Work Areas

As work progresses on-site, the OSC may determine that an area previously designated an EA is no longer classified in that manner. It is not intended, however, to change the designation of the CRA since this may involve the movement of the decontamination facilities and added expense.

SAFETY PROCEDURES AND LEVELS OF PROTECTION

Exclusion Area

1. All personnel shall enter and exit the Exclusion Area through the Contamination Reduction Area.

2. Emergency escape routes from the Exclusion Area will be established and reviewed as appropriate at each morning safety meeting.

SAFETY PROCEDURES AND LEVELS OF PROTECTION (continued)

Exclusion Area

3. All personnel in the Exclusion Area shall use the protective equipment designated for their job function but in no case shall less than LEVEL C be used.

4. Personnel performing the following job functions in the Exclusion Area will utilize the designated level of protection equipment.

Contamination Reduction Area

1. Personnel and equipment decontamination will be performed in Level C.

2. All personnel entering the CRA will utilize a minimum of Level C protection.

3. All personnel entering the CRA must decontaminate which will be performed in Level C.

4. All equipment entering the CRA must be decontaminated prior to leaving the CRA.

Support Area

1. No contaminated equipment or personnel may enter the Support Area.

2. Except in the case of a release of a Toxic vapor, Level D will be appropriate for all personnel in the Support Area.

Prime Contractor

1. Barrel opening, sampling, pumping and bulking will be performed in Level B, This applies to anyone involved, including equipment operators.

2. When excavating in areas of potential drum burial, operations will be performed in Level B.

3. All other excavating operations will be performed in Level C.

4. Soil removal operations will be performed in Level C.

5. Handling of secured drums will be performed in Level D.

DECONTAMINATION PROTOCOL

All equipment and personnel entering the site must be thoroughly decontaminated prior to leaving the site. Since there are various protocol and equipment available for this purpose, the OSC will determine if the proposed decontamination techniques are applicable. Such determinations will be made on a day-to-day basis as on-site operations dictate.

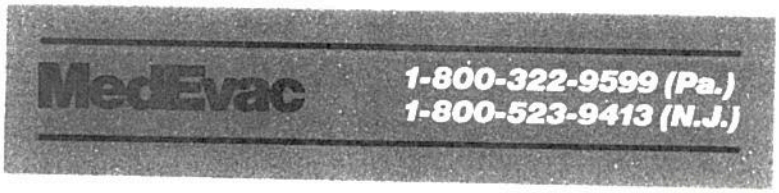
ON-SITE AIR MONITORING

Additional air sampling will be dependent on the data obtained from onsite. Photoionization Detector and/or Organic Vapor Analyzer. Additional air monitoring will be performed as conditions warrant. This monitoring will be designed and performed by the OSC or his technical staff.

EMERGENCY PROCEDURES

In the event of a medical or other emergency, the OSC or his designee will notify the appropriate authority. The following list of phone numbers will be posted prominently at each telephone on-site:

1. Fire 639-4500
2. Ambulance 788-0444 (Bucks County Rescue Squad)
3. Police 639-3700
4. Federal Government 215-597-8170
5. State Government 631-2400 (Env. Protection & Regulation (Norristown, PA)
6. County/City Government 348-3524
7. EPA Environmental Response Team 215-597-9898
8. Hospitals Frankford Torresdale
   Knights Rd., Philadelphia, PA
   934-4055



SITE SAFETY PROTOCOL
Attachment A

Bensalem Drum Dump Site
Bensalem, Lower Bucks County, PA

WEATHER AND HEAT STRESS

Adverse weather conditions are important considerations in planning and conducting site operations. Hot or cold weather can cause physical discomfort, loss of efficiency and personal injury. Of particular importance is heat stress, resulting when protective clothing decreases natural body ventilation. The following recommendations will help reduce heat stress:

1. Provide plenty of liquids. To replace body fluids (water and electrolytes) lost due to sweating.

2. Install mobile showers and/or hose-down facilities to reduce body temperature and cool protective clothing.

3. In extremely hot weather, conduct nonemergency response operations in the early morning or evening.

4. Ensure that adequate shelter is available to protect personnel against heat, cold, rain, snow, etc., which can decrease physical efficiency and increase the probability of accidents.

5. In hot weather, rotate shifts of workers wearing impervious clothing.

Heat Stress Monitoring

Due to the time of year, a Heat Stress Monitoring Program may be needed during working hours. Personnel would be subject to the following monitoring program:

For monitoring the body's recouperative ability to excess heat, one or more of the following techniques will be used as a screening mechanism. Monitoring of personnel wearing impervious clothing should commence when the ambient temperatures increase or as slow recovery rates are indicated. When temperatures exceed 85°F, workers should be monitored for heat stress after every work period.

HEAT STRESS MONITORING (continued)

1. Heart rate (HR) should be measured by the radial pulse for 30 seconds as early as possible in the resting period. The HR at the beginning of the rest period should not exceed 110 beats per minute. If the HR is higher, the next work period should be shortened by 10 minutes (or 33%), while the length of the rest period stay the same. However, if the OT exceeds 99.7°F at the beginning of the next period, the following work cycle should be further shortened by 33%. OT should be measured again at the end of the rest period to make sure that it has dropped below 99°F.

2. Body water loss (BWL) due to sweating should be measured by weighing the worker in the morning and in the evening. The clothing work should be similar at both weighings; perferably the worker should be nude. The scale should be accurate to plus or minus 1/4 lb. BWL should be instructed to increase his daily intake of fluids by the weight lost. Ideally, body fluids should be maintained at a constant level during the work day. This requires replacement of salt lost in heat as well.

3. Blood pressure before and after each work period will be monitored.

4. Good hygenic standards must be maintained by frequent changes of clothing and daily showering. Clothing should be permitted to dry during rest periods. Persons who notice skin problems should immediately consult medical personnel.

Effects of Heat Stress

If the body's physiological progresses fail to maintain a normal body temperature because of excessive heat, a number of physical reactions can occur ranging from mild (such as fatigue, irritability, anxiety and decreased concentration, dexterity or movement) to fatal. Standard reference books should be consulted for specific treatment.

Heat-related problems are:

- Heat Rash: Caused by continuous exposure to heat and humid air and aggravated by chafing clothes. Decreases ability to tolerate heat as well as being a nuisance.

- Heat Cramps: Caused by profuse perspiration with inadequate fluid intake and chemical replacement (especially salts). Signs: Muscle spasm and pain in the extremities and abdomen.

EFFECTS OF HEAT STRESS (continued)

- Heat Exhaustion: Caused by increased stress or various organs to meet increased demands to cool the body. Signs: Shallow breathing; pale, cool, moist skin; profuse sweating; dizziness and lassitude.

- Heat Stroke: The most severe form of heat stress. Body must be cooled immediately to prevent severe injury and/or death. Signs and symptoms are: Red, hot, dry skin; no perspiration; nausea; dizziness and confusion; strong, rapid pulse, coma.

Any personnel that feels he is displaying any effects of heat stress that may not be known to the medical monitoring personnel, will report these immediately.

Name	Organization	Date
Jack Bender	OH Materials	3/17/86
Mike [illegible]	O.H.M.	3/17/86
Henry [illegible]	O H M	3/17/86
[illegible]	OHM	3/17/86
David Rivera	OHM	3/17/86
Joe Saliota	OHM	3/17/86
John Klein	OHM	3/17/86
[illegible]	OHM	3/17/86
Jim Valaugh	OHM	3/17/86
[illegible]	TAT / Weston	3-17-86
[illegible]	TAT / Weston	3-17-86
[illegible]	USSPH, USC	3/17/86
[illegible] Carpenter	AST	3/17/86
Brian [illegible]	AST	3-17-86
Brian [illegible]	AST USCG	3-18-86
Pete [illegible]	EPA Reg 3 Public Affairs	3/18/86
Jerry [illegible]	WCAU-TV	3/18/86
[illegible]	WCAU-TV	3/18/86
[illegible]	WTAF-TV	3/18/86
[illegible]	WTAF-TV	3/18/86
Gary Crawford	Bucks County Courier Times	3-18-86
[illegible]	WPVI-TV	3-18-86
[illegible]	WPVI-TV	3-18-86
[illegible]	OHM	3-18-86
[illegible]	Burns	3-18-86
Michael Moore	Burns Inter. Security	3-18-86
Thomas K Walsh	Eddington Supply Co.	3-19-86
[illegible]	Eddington Supply Co	3-19-86
[illegible]	[illegible]	3-19-86
Michael M. [illegible]	PA. DER - Waste Management	3/20/86
Mike Pennella	PA DER Waste Mgmt	3/20/86
[illegible]		
[illegible]	OHM	3/20/86
[illegible] Manning	Burns I.S.S.	3/20/86
[illegible]	[illegible]	3-21-86
[illegible]	EPA	3-21-86
William [illegible]	EPA	3-21-86
[illegible]	Owner	3-21-8[illegible]
[illegible] Johnson	None	3-21-86
[illegible] McManus	PECO	3-21-86
[illegible]	[illegible]	[illegible]
R. Habrykowich	TAT-WESTON	3-21-86
David [illegible]	OHM	3-24-86
Dan [illegible]	OHM	3-24-86
Edward [illegible]	OHM	3-24-86
[illegible] Garcia	Burns	3-20-86
Pat [illegible]	Weston TAT	3-25-86
[illegible]	Owner	3-25-86
[illegible]	Owner	3-26-86
Benjamin [illegible]	BURNS I.S.S.	3-31-86
[illegible]	OHM	3-31-86
[illegible]	AST	
[illegible]	OHM	3/31/86
[illegible]	OHM	3-31-86
David [illegible] SR	TAT Weston	3/31/86
[illegible]	OHM	4/1/86
[illegible]	MEDEVAC	4/1/86
[illegible]	EPA	4/3/86
[illegible]	OHM	4/3/86

NAME	ORGANIZATION	DATE
Joseph Torrance	Burns Inter. Security	4/7/86
[illegible]	TAI	4/6/86
[illegible]	EPA - OSC	4/6/86
[illegible]	[illegible]	4/6/86
[illegible]	[illegible]	4/7/86
Sgt. C. Mugler	BI-1551 Burns	4-12-86
Brenda Miller	Burns	6-23-86
Jay Halchak	BISSI	7-1-86

APPENDIX D

NEWS ARTICLES

Bucks County Courier Times

Tuesday, March 18, 1986

EPA begins Superfund cleanup of toxic waste dump in Bensalem

By Joseph Grace
and Bob Bauers
Courier Times Staff Writers

About 150 steel drums contaminated with toxic chemical wastes, many of them on the bank of a Neshaminy Creek tributary in Bensalem, will be removed by federal officials beginning today, officials said Monday.

The drums are scattered throughout a vacant industrial tract on Galloway Road, across from the rear entrance to Philadelphia Park race track. Mill Creek runs along the edge of the property. Many of the drums have rusted through and the chemicals have contaminated the soil.

Officials of the U.S. Environmental Protection Agency, who cordoned off the tract Monday, the first day of the cleanup effort, characterized the leaking drums as a serious, potential environmental hazard.

Tests show Mill Creek has not been contaminated by the wastes, but the potential for contamination spurred EPA officials to allocate $250,000 from the federal Superfund for the cleanup, said Roger Meyer, an EPA official coordinating the effort.

Mill Creek flows into the Neshaminy Creek, which empties into the Delaware River.

Meyer said the toxic metals found in the drums were similar to those found in paint wastes, solvents and oil byproducts. He said the liquid wastes discovered thus far include lead, nickel, cadmium, among others. Ingesting or inhaling the mixtures could be poisonous, he said.

The decaying drums are probably the result of a steel drum recycling business that operated at the site in the mid-1960s, according to Victor Janosik, an EPA compliance officer. The wastes are consistent with those found at other recycling sites, he said.

Janosik said a recycling business cleans out used steel drums, removing paint and residue and repainting the barrels.

The recycling business was operated by Silver Brothers Inc. from 1965 through 1968, Janosik said. But Bernie Silver, who operated the business, is dead, and the corporation is defunct, he said.

Because the property is being cleaned up with Superfund money, current and past owners of the site are potentially liable for the cost of the cleanup, officials said.

The site is owned by Omega Inc., a defunct electrical contracting business that was operated by Robert C. Stewart and Charles R. McAnally, according to Janosik

(Continued on Page 2)

These empty barrels denote site of toxic waste burial ground off Galloway Road in Bensalem

Courier Times photo by Bill Johnso

EPA begins Bensalem site cleanup

(Continued from Page 1)

and Bensalem Township records.

The Nockamixon-Bucks Industrial and Commercial Development Authority, a quasi-government body that arranges low interest development financing, holds title to the property, but Omega owns the land, said authority Solicitor Robert Valimont.

Janosik said the EPA has no reason to believe Omega was involved in the drum dumping. Valimont said the company had dumped nothing.

EPA officials at the site Monday concentrated their activity on the area immediately surrounding the vacant Omega building and parking lot. But Meyer said that drums were scattered throughout an adjoining wooded tract that once was part of the Silver recycling business.

Meyer said the drums would be removed from the site beginning today by federal workers clothed in white, protective garb. He estimated the effort would involve 20 workers and take several weeks.

He said the method of disposing of the wastes would depend on how much of the Superfund allocation remained when all the drums have been removed. The wastes could be landfilled, incinerated, or chemically neutralized, Meyer said.

The wooded tract that abuts the Omega property is owned by Sarkis Sarkissian, and Vahe and Nectar Derassouyan, according to township tax records. But the property was sold within the past month to K.N. Modi, according to Domenick Marucci, who lives next door to the wooded land.

Marucci, a real estate agent who negotiated the tract's sale to Modi, said he alerted federal officials to the rusting drums about a year ago, while workers were cleaning up an unrelated oil spill on Galloway Road.

Marucci said EPA officials came to his home and inspected about a dozen drums scattered in the woods near his property line. He said he was told those drums posed no health hazard. The drums were in the woods Monday.

Marucci said he was unaware of the larger cache, and expressed concern.

"I didn't know about any chemicals," he said.

Bucks County Courier Times
Wednesday, March 19, 1986

Courier Times photo by Jay Crawford

Toxic cleanup under way

A "moonsuited" worker from the federal Environmental Protection Agency removes a suspicious barrel from a field in Bensalem Tuesday. The EPA has begun a $250,000 cleanup of the area off Galloway Road. The site is known to be the burial ground of about 150 barrels of dangerous chemicals known as heavy metals. See another photo on Page 11.

Scrub down

"Moonsuited" workers from the Environmental Protection Agency scrub down after removing dangerous chemicals from a field off Galloway Road in Bensalem Township.